

EFFECTS OF LEAD AND CADMIUM ON BIRTH WEIGHT IN A COHORT OF PREGNANT WOMEN IN CALI - COLOMBIA

Authors: Diana María Caicedo, Javier Fonseca, Miguel Peña, Cecilia Aguilar, Mildrey Mosquera, Cristina Araujo, Genny Martínez, Daniel Cuartas, Fabián Méndez – *Universidad del Valle, Cali, Colombia.*

Background and aims: Population's exposure to heavy metals may affect foetal growth. Studies in Cali show presence of heavy metals in the environment and plausible routes of exposure among vulnerable population. This study aims to evaluate the association between maternal exposure to lead and cadmium and the occurrence of LBW and IUGR.

Methodology: A prospective cohort study was developed. The enrolment of pregnant women was carried out at 11-13 weeks of gestation. Follow-up from admission to delivery included three ultrasounds, clinical evaluations, and determining maternal blood levels of lead and cadmium during the first and third trimesters of pregnancy. Surveys were used to characterize risk behaviours and habits of mothers and their partners. At birth, an anthropometric evaluation was performed on the newborn.

Results: 386 pregnant women were included. Among them, 50% were 18-22 years old; 43%, black; 77%, housewives; and 34% have no social security. At first trimester median lead and cadmium levels were 1.01(0.00-16.1), and 0.11ug/dl(0.01-4.2), correspondingly; while at third trimester were 0.84(0.00-27.95) and 0.04ug/l(0.01-7.08). 47% of women live with people handling Pb/Cd (at job or at home), 35% live close to commercial sources of Pb/Cd, and 48.3% are near a large municipal dump. The incidence of LBW is 7.87% and IUGR is 4.7%. Lead levels ≥ 5 ug/dl at first trimester were associated with an increased risk of LBW (RR: 3.65; CI95% 0.97-13.69; $p=0.054$).

Conclusions: Women are exposed to several sources of heavy metals during the first trimester of pregnancy, and presented an increased risk of LBW. This knowledge is useful for implementing preventive actions by identification of risk factors of exposure.